KNN/Regularization (Q8L9)   62% (13/21)

✓ 1. The bias of an estimator (e.g. z^) equals...Hint: the OLS coefficients are unbias :)

A $E(z^{\wedge}) - z$

B $E(z^2) - [E(z)]^2$

C $[E(z^2) - E(z)]^2$

D $E(z^2)$

E I do not know

✓ 2. The main idea of regularization is

A To introduce a small amount of bias in order to have less variance.

B To introduce a small amount of variance in order to have less bias.

C To introduce a small amount of variance and bias in order to have less bias.

D I do not know

✓ 3. How the tune of any parametr can be made

A using Cross validation

B It is impossible

C I do not now

D using larger sample

E only having population

✗ 4. The ridge coefficient estimates shrink towards zero

A when lambda increases

B when lambda decreases

C when lambda = 0

D I do not know

✓ 5. Which one can shrink the slope all the way to 0?

A Lasso

B Ridge

C Regression

D I do not know

✗ **6. When lambda = 0, we have**
- (A) Ridge
- **(B) Lasso**
- (C) EL
- (D) Regression
- (E) I do not know

✓ **7. When alpha = 0, we have**
- **(A) Ridge**
- (B) Lasso
- (C) EL
- (D) Regression
- (E) I do not know

✗ **8. Which function can help to perform cross-validation for regularization in R?**
- (A) cv.glmnet()
- (B) cros_val()
- **(C) glmnet(method = "cv)**
- (D) I do not know

✗ **9. KNN is**
- (A) Data-driven
- **(B) Model-driven**
- (C) I do not now

✗ **10. KNN is**
- **(A) parametric method**
- (B) non-parametric method
- (C) I do not know

✓ **11. The dependent variable of the (OLS) regression is**
- (A) categorical
- (B) ordinal
- **(C) continuous**
- (D) count
- (E) I do not know

✓ **12. The dependent variable of the classification is**

(A) categorical

(B) numeric

(C) I do not know

✓ **13. How to chose K?**

(A) pick own

(B) using cross-validation

(C) the largest one

(D) the smallest one

✗ **14. KNN can be used for regression**

(A) Yes

(B) No

(C) I do not know

✗ **15. In the case of KNN classification we use**

(A) average of outcomes

(B) majority voting scheme

(C) I do not know

✓ **16. Which of these errors will increase constantly by increasing k?**

(A) train error

(B) test error

(C) both

(D) I do not know

✓ **17. This function can be used to perform KNN in R**

(A) knn()

(B) k_nn()

(C) knnreg()

(D) knearneib()

(E) I do not know

✗ 18. With the increase of k, the decision boundary will be

(A) simplified

(B) more complex

(C) I do not know

(D) unchanged

✓ 19. The best k correspond to

(A) the lowest point of test error

(B) the lowest point of train error

(C) the highest point of test error

(D) I do not know

✓ 20. KNN algorithm is sensitive to outliers

(A) True

(B) False

(C) I do not know

✓ 21. KNN

(A) is a supervised learning algorithm.

(B) is an unsupervised learning algorithm.

(C) I do not know